

WATER QUALITY OF DAWSON COUNTY

Ground Water

A total of four ground water samples were collected from two wells in Dawson County (see attached map) as part of the MDA 2005 Yellowstone River Valley Project. One of the wells is a permanent monitoring well maintained by the MDA for collecting ground water samples and the other is a private domestic well. Both of the wells sampled were shallow (<31 feet) and were located down gradient of irrigated cropland areas (see attached map for locations). No pesticides were detected in the ground water samples collected in Dawson County. Nitrate was detected in both ground-water samples from well YCP-4 (3.6 and 4.0 mg/L) and in one sample from DAW-2 (1.0 mg/L).

Summary of Pesticide/Nutrient Detections in Shallow Ground Water along the Yellowstone River, Dawson County, 2005 Collected by the Montana Department of Agriculture			
Well I.D.	Date	Nitrate (mg/L)	Pesticides (µg/L)
YCP-4	05/03/2005	3.6	ND
	07/19/2005	4.0	ND
DAW-2	05/03/2005	ND	ND
	07/19/2005	1.0	ND
mg/L = milligrams per liter µg/L = micrograms per liter ND = not detected above analytical method reporting limits			

The City of Glendive and the Jefferson School District in Forest Park obtain part or all of their public water supplies from ground water wells. However, none of these wells obtain water from the shallow alluvial aquifers along the Yellowstone River. Instead they obtain water from deeper bedrock aquifers, which are much less likely to be impacted by human activities. None of the wells for these public water supplies had pesticide detections for samples collected in 2001 and 2004. Between 2000 and 2005 the City of Glendive's wells had only one nitrate detection (0.05 mg/L) and the Jefferson School District well also only had one nitrate detection (1.0 mg/L).

The Montana Bureau of Mines and Geology (MBMG) conducted a study of ground-water resources in the lower Yellowstone River basin during 1995 (Smith, et al, 2000). During this study the MBMG collected numerous ground water samples in the region and tested them for nitrate. Approximately 34 of these samples were collected from wells obtaining water from shallow alluvial aquifers along the Yellowstone River Valley in Dawson County. Nitrate was detected in all 34 wells where samples were collected. Concentrations ranged from 0.03 to 57.38 mg/L, with a median concentration of 0.58 mg/L. Four of the 34 samples exceeded the drinking water standard of 10 mg/L for nitrate, and 7 of the samples exceeded 50% of the standard. All

four of the samples that exceeded the drinking water standard for nitrate came from the same area in the very southwestern part of Dawson County (Township 13N, Range 53E, Sections 2, 10, 11, and 12). Concentrations in these four wells ranged from 15 to 57.38 mg/L.

Surface Water

The City of Glendive obtains part of its public water supply from the Yellowstone River. This water is sampled periodically for numerous constituents including some pesticides and nitrate. Between 2000 and 2005 two samples have been collected and analyzed for pesticides. Neither of these samples contained any pesticides above the analytical method detection limits. Yearly samples have been collected for nitrate analysis during this same time period. Five of the six samples contained nitrate with concentrations ranging from 0.06-0.34 mg/L. The human health standard for nitrate in drinking water is 10 mg/L.

Smith, L.N., LaFave, J.I., Patton, T.W., Rose, J.C., and McKenna, D.P., 2000, Ground-Water Resources of the Lower Yellowstone River Area: Dawson, Fallon, Prairie, Richland, and Wibaux Counties, Montana. Montana Bureau of Mines and Geology Montana Ground-Water Assessment Atlas No. 1.